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ALBERT FREDERICK HILL
STUART KIMBALL HARRIS
RALPH CARLETON BEAN
RICHARD ALDEN HOWARD
CARROLL EMORY WOOD, JR.
} Associate Editors

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CONTENTS:

Draba on Clay Butte, Wyoming. *Reed C. Rollins* 229

Montana Plant Distribution Records. *W. E. Booth and J. C. Wright* 236

The Discovery and Destruction of Callicarpa americana in Missouri. *Julian A. Steyermark* 238

Typification of Euphorbia maculata L. *F. R. Fosberg* 241

Allium tricoccum Ait., var. Burdickii, var. nov. *Clarence R. Hanes* 243

Iris Pseudacorus L. Established in the Vicinity of London, Ontario. *W. W. Judd* 244

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Rhodora

JOURNAL OF

THE NEW ENGLAND BOTANICAL CLUB

Vol. 55 June, 1953 No. 654

DRABA ON CLAY BUTTE, WYOMING

Reed C. Rollins

Hardly more than half a mile from Beartooth Butte, noted for the deposition there of Lower Devonian fossil plants (Dorf, 1933), is Clay Butte. These Buttes (really "flat-topped" mountains) situated in the extreme northwestern corner of Park County, Wyoming, and not far east of Yellowstone Park, are made up of a variety of clays, basic shales, and rocks somewhat in contrast to many of the primarily granitic mountains of the surrounding area. Clay Butte, as Professor C. L. Porter of the University of Wyoming and I were to discover, is a real mecca for anyone interested in the genus *Draba*. In two days of botanizing on this 10,300—foot mountain in early August, 1951, we covered the varied habitats of the broad approaches to the highest part of the Butte and collected fifteen numbers of *Draba* representing eleven different species. Later in the month Professor Porter made several additional collections from more northerly stations on the Butte. Some of these latter collections are mentioned below in addition to those made earlier. Not only was there an unusually large number of species on Clay Butte, but in most instances there were thousands or hundreds of thousands of individuals of each species. *Draba* was found in a wide range of habitats, including such extremes as rock chimneys, steep clay slopes, and nearly bare "snowdrift-melt" areas. An exceedingly wide range of variation is demonstrated by the samples of several populations of *D. incerta*, and others of the collections made are of special interest. Some problems have arisen in connection with the identity of the specimens taken, and it is my present purpose to deal with these and to mention specifically the nature of the variation encountered. The material collected was ample for most of

the numbers, there being an abundance of plants at nearly every location.

Draba oligosperma Hook. Three collections are referable to this species which grows in exposed situations. *Rollins & Porter 51273* was collected on a ridge-top and the plants were of the "pincushion" type with densely congested leaves and short scapes, 1–3 cm. long. The siliques in this collection are nearly orbicular in outline, though tapered above, and range from being well-covered with simple recurved trichomes to nearly glabrous. *Rollins & Porter 51270* came from a slightly less exposed situation and the plants were less compact. They formed mats up to six inches in diameter and the scapes varied from 3 to 6 cm. high. The silique-shape among these plants varies from nearly orbicular in outline to slightly longer than broad and they are densely to sparsely covered with simple recurved trichomes. Three plants of this collection with more elongate fruits, pubescent pedicels and branched trichomes upon the fruits are of special interest and are discussed below. A third collection made by Porter (no. 5884) is quite similar to no. 51270, and a fourth, from nearby Beartooth Butte, made in 1939, *Rollins & Muñoz 2840*, is very similar to no. 51273.

Down the slope from the ridge-top where *D. oligosperma* was found were plants of a closely related species collected as no. 51269. These have elongated siliques that are rounded above, tapered below and covered with "doubly pectinate" appressed trichomes on the valve surfaces. The shape differs markedly from the broad fruits of *D. oligosperma* which are rounded below, tapered above, and covered with simple recurved trichomes. Also, the longer pedicels and scapes are pubescent instead of glabrous, as in *D. oligosperma*, and the petals are white instead of yellow. Though closely related to the latter species, there is a pattern of distinctive characteristics that shows these plants are not the same. Below, the plants are described as *D. pectinipila*.

This new species is in contact with *D. oligosperma* and there is evidence that some hybridization occurs. This evidence comes from three plants collected near the point of contact on Clay Butte where nos. 51269 and 51270 were taken. One of the three shows a mixture of simple and branched trichomes on the valve surfaces, with considerable variation from one silique to another.

Also, the siliques are broader and less elongated than is characteristic of *D. pectinipila*. The other two plants are more compact than is usual for *D. pectinipila*, but this is not surprising since they were growing in a more exposed situation. One of the two has nearly glabrous pedicels but they are otherwise much alike and fit *D. pectinipila* very well. These three plants have been placed in the Gray Herbarium under no. 51270a.

Draba pectinipila Rollins, sp. nov.

Deep-rooted soboliferous perennial; caespitose, clumps 2–4 inches across; caudex loosely matted, highly branched; leaves tufted, terminating the caudex branches, linear to narrowly linear-oblanceolate, 5–12 mm. long, 0.75–1.5 mm. wide, densely pubescent with appressed branched trichomes, these with a central axis and simple or forked branches on each side (doubly pectinate), ciliate with much larger, simple or rarely forked trichomes along the petiole margins; cauline leaves lacking; scapes 3–10 cm. long, slender, pubescent throughout with "doubly pectinate" trichomes; infructescence elongated, often occupying up to three-fourths of the scape-length; pedicels slender, divaricately ascending, straight to slightly curved upward, pubescent, 5–10 mm. long, expanded at summit; sepals tending to be persistent, sparsely pubescent, hyaline-margined, broadly oblong to elliptical, 2.5–3 mm. long, ca. 1.5 mm. wide; petals white, spatulate, 4–5 mm. long; filaments broad, markedly dilated below; siliques oblong, rounded above and tapered below, 5–8 mm. long, 2–3 mm. broad, flattened parallel to replum, pubescent on valve surfaces with appressed "doubly pectinate" trichomes, pubescent on the margins with forked or simple recurved trichomes; styles uniform in diameter from base to apex, 0.5–0.75 mm. long, stigma discoid, slightly greater in diameter than style; seeds 3–5 in each loculus, wingless, oblong, ca. 1.5 mm. long, 1 mm. wide.

Herba perennis caespitosa sobolifera; caulibus tenuibus erectis pubescentibus 3–10 cm. longis; foliis linearibus vel lineari-oblanceolatis dense pubescentibus 5–12 mm. longis, 0.75–1.5 mm. latis; pedicellis tenuibus divaricatis pubescentibus 5–10 mm. longis; petalis albis spathulatis 4–5 mm. longis; siliquis oblongis pubescentibus 5–8 mm. longis, 2–3 mm. latis; stylis 0.5–0.75 mm. longis; seminibus oblongis emarginatis ca. 1.5 mm. longis.

Type in the Gray Herbarium, collected on a rocky exposed slope in heavy clay soil, Clay Butte, one-half mile west of Beartooth Butte, northwestern Park County, Wyoming, August 1, 1951, *Reed C. Rollins & C. L. Porter 51269*. Other specimens seen: dry hillsides, vicinity of Flaming Gorge, Daggett Co., Utah, June 1, 1932, *L. Williams 476* (GH); same locality, 15 miles southeast of Manila, June 3, 1938, *Reed C. Rollins 2275* (GH).

The Utah specimens cited are very similar to the northern Wyoming material in most respects, but differ in having a slightly

coarser pubescence and siliques that are tapered both above and below.

The evidence that *D. oligosperma* and *D. pectinipila* hybridize would be used by some botanists as a basis for including both types within the same species. However, the fact that both maintain themselves in the area where they are in contact is very good evidence that there are genetic barriers of some kind preventing the formation of a single panmictic population. Furthermore, it seems to me that the existence of two populations separated by nearly four hundred miles, yet fitting neatly into the same morphological pattern, is evidence that we are dealing with an old and well established species, not populations of recent hybrid origin. The northeastern Utah-northwestern Wyoming jump may seem unusual, but this distribution is nearly paralleled by *Draba apiculata* and also by such an unusual crucifer in its Rocky Mountain distribution as *Parrya nudicaulis*, to mention only two examples from the Cruciferae alone. Of course it is quite possible that intermediate stations of *D. pectinipila* will be found as further explorations are carried out.

Draba incerta Payson. The five collections from the Beartooth Butte area, referable to this species, show an extremely wide range of variation. In fact, the limits equal or exceed that shown by the other forty specimens of *D. incerta* in the Gray Herbarium from the whole geographical range of the species. *Rollins & Porter 51276* was collected in the clay soil of rock crevices on a steep slope. The plants were loosely tufted, usually with numerous stems and with linear-lanceolate leaves. On the specimens collected, the siliques are narrow, elongated and pubescent. In contrast, the plants of *Porter 5904*, from near Island Lake in the same general area, have broad pods and much broader leaves. *Rollins & Porter 51271* is a glabrous fruited collection, the fruits being much the same size and shape of the type collection of *D. incerta*. While the plants of this collection were definitely caespitose, the tufts rarely exceeded 2 inches in diameter. However, plants of a mixed glabrous and pubescent fruited collection, *Rollins & Porter 51277*, grew in clumps up to six inches in diameter with numerous stems. The siliques of the latter are narrower and more elongated than most collections of *D. incerta*, being somewhat like no. 51276 in that respect. A col-

lection made in 1939 from Beartooth Butte, *Rollins & Muñoz 2843*, is similar to the type collection, and this includes the nature of the pubescence of the fruits.

In seeking for the basis of the rather wide quantitative and qualitative differences characterizing the collections mentioned, attempts were made to count the chromosomes in those collections where seed was available. Considerable favorable material of *Porter 5904* was obtained and, after hours of study of many figures, the number 2n = ca. 100 was arrived at.[1] Although an absolute count could not be established, it is at least known that high polyploidy is one of the contributing factors to the wide variation found.

Draba apiculata C. L. Hitchc. Plants of this species are caespitose, occurring in tufts up to two inches in diameter. The numerous scapes are relatively stout, as are the divaricate pedicels. It was collected in fruit as *Rollins & Porter 51272* on August 1, and later on August 17 picked up in flower by Porter (no. 5893) on the north end of Clay Butte. With Carlos Muñoz (no. 2839) I collected this species on Beartooth Butte in 1939. These collections are from the northernmost known stations for the species. As noted above, it ranges southward in the high mountains of western Wyoming to the Uinta Mountains of northeastern Utah. Our collecting sites on Clay and Beartooth Buttes are so close to the Montana border that *D. apiculata* is almost certain to be found in that state.

Draba Paysonii Macbride. Some of the plants of this species growing on a steep rocky slope were definitely woody at the base and most of them occurred in loose soil that showed evidence of seasonal shifting. The specimens taken have a very deep root system with an extensive and successively branched caudex. Collected on the south slope of one of the upper ridges, *Rollins & Porter 51275*.

Draba nivalis Lilj., var. **brevicula** Rollins, var. nov.

Perennial, caespitose, caudex usually branched; leaves tufted, terminating the caudex branches, broadly oblanceolate, obtuse, 4–10 mm. long, 1.5–2.5 mm. wide, only slightly narrowed to the petiole, midvein evident below, not detectable above, densely covered with dendritic trichomes, not pannose; ciliate along petiolar area; scapes 1 to 10, slender, pubescent

[1] I am indebted to Dr. L. O. Gaiser for making the two chromosome determinations reported in this paper.

below to sparsely so above, 2–6 cm. high; infructescence with 2 to 10 siliques often grouped toward the apex of the scape; pedicels ascending to divaricately ascending at an angle of ca. 45° from the rachis, glabrous, 0.5–2 mm. long, lower one or two pedicels with a leaf-like bract; bract entire, sessile, glabrous or with a few simple trichomes; sepals persistent, falling off only when fully matured siliques have been developed, white to yellowish white, oblong, ca. 1.5 mm. long, with a few long simple or forked trichomes on the back; petals white, spatulate, with a slender claw markedly emarginate, 2–3 mm. long; filaments dilated at base, whitish, anthers oval; siliques narrowly elliptical to ovate, glabrous, flattened parallel to septum, plain, not nerved, 4 to 8 mm. long, 1.5–2.5 mm. wide; style very short, less than 0.2 mm. long, stigma unexpandable; ovules 4–7 in each loculus.

Herba perennis; foliis oblanceolatis obtusis 4–10 mm. longis, 1.5–2.5 mm. latis; scapis tenuibus pubescentibus; pedicellis divaricatis 0.5–2 mm. longis; siliquis ellipticis vel ovatis glabris 4–8 mm. longis, 1.5–2.5 mm. latis.

Type in the Gray Herbarium, collected in crevices of vertical cliffs on the western edge of Clay Butte, August 2, 1951, *Reed C. Rollins & C. L. Porter 51278*. This same variety was collected on Beartooth Butte by *Louis O. Williams & Rua P. Williams 3649* in a mixture with *D. lonchocarpa* (GH).

Variety *brevicula* differs from *D. nivalis* proper in having short glabrous instead of much longer pubescent pedicels, broader siliques, fewer seeds and much larger basal leaves which lack the characteristic pannose pubescence of var. *nivalis*. Our plants are so different from the other Rocky Mountain varieties of *D. nivalis* that they at first appeared to represent a totally new species. However, once *D. nivalis* var. *elongata* was seen to represent a distinct species (*D. lonchocarpa*), as indicated below, it became easier to see the relationships. Variety *brevicula* appears to be closest to Newfoundland material of *D. nivalis*, but its relatedness to *D. nivalis*, var. *exigua* can also be seen.

Draba lonchocarpa Rydb. Two collections of this species were taken, one in the open (*Rollins & Porter, 51279*) and the other from the shady crevices of cliffs (*Rollins & Porter, 51280*). An additional collection from the north end of Clay Butte, *Porter 5883*, has a chromosome number of 2n = 16. Two collections from nearby Beartooth Butte are *Louis O. Williams & Rua P. Williams, 3649* in part (GH), and *Rollins & Muñoz, 2844* (GH).

For some time I have followed Dr. C. L. Hitchcock (1941) in treating this taxon as *D. nivalis* Lilj., var. *elongata* Wats. How-

ever, in studying the material of *D. nivalis*, I found that in addition to the other recognized characters that distinguish it from *D. lonchocarpa*, the funiculi are very short whereas in *D. lonchocarpa* the funiculi are very long and slender, equalling or exceeding the seeds in length. This is a fundamental difference that remains relatively constant and can be readily utilized to recognize even the shorter podded forms of *D. lonchocarpa*. I am convinced that these plants should be recognized on the species level. It is quite interesting that the long slender funiculus is also present in *D. nivalis*, var. *Thompsonii* as would be expected on other grounds. To bring the nomenclature into line, var. *Thompsonii* is transferred to *D. lonchocarpa* as follows:

Draba lonchocarpa Rydb., var. **Thompsonii** (C. L. Hitchc.) comb. nov. Based upon *D. nivalis* Lilj., var. *Thompsonii* C. L. Hitchcock, Univ. Wash. Publ. Biol. *11:* 85. 1941.

Draba aurea Vahl. Specimens were found on the grassy ridge-top of Clay Butte, *Rollins & Porter, 51260.*

Draba lanceolata Royle. Grassy ridge-top, Clay Butte, *Rollins & Porter, 51258.*

Draba crassifolia R. Graham. Hillside on bare soil of "snowdrift melt," *Rollins & Porter, 51261.* Also obtained on clay slopes near the north end of Clay Butte on August 17th, *Porter, 5890.*

Draba stenoloba Ledeb. Grassy ridge-top, Clay Butte, *Rollins & Porter, 51259.*

Literature Cited

Dorf, Erling. 1933. A New Occurrence of the Oldest Known Terrestrial Vegetation from Beartooth Butte, Wyoming. Bot. Gaz. **95:** 240–57.

Hitchcock, C. Leo. 1941. A Revision of the Drabas of Western North America. Univ. of Wash. Publ. Biol. **11:** 1–132.

MONTANA PLANT DISTRIBUTION RECORDS

W. E. Booth and J. C. Wright

New distribution records of the state flora in the Montana State College Herbarium have appeared during the past few years. It is interesting to note that about half of these new records were established from the examination of plants which were sent to the Herbarium for identification.

A recently adopted College policy directs that all plants sent to the College be sent to the Herbarium. The plants are processed at the Herbarium, and information regarding their identification is supplied the various specialists for their use in replying to the inquiries accompanying the plants. In former years, inquiries regarding plants were answered by the individuals who received them, but no permanent records were kept. Valuable records and much useful information has been compiled as a result of having all plants and questions regarding them referred to the Herbarium.

Among the new distribution records are these:

Agropyron triticeum Gaertn. Collected by J. C. Wright in Park County, Montana, Yellowstone National Park winter game range; present in crested wheatgrass meadow. June 23, 1952.

Another specimen was collected by George York from the same area July 8, 1952. The grass was mature at this time, and a small amount of seed was collected.

Artemisia longifolia Nutt. Collected by Karl Parker 30 miles southwest of Shelby, Toole County, Montana. 1952.

Another specimen was examined from Circle, McCone County, Montana in August 1951. The plant was submitted by L. P. Cade, but was not retained in the Herbarium as a specimen.

Aster frondosus (Nutt.) T.&G. Plants submitted as weeds from Ronan, Lake County, Montana. A sizeable patch in field. August 25, 1952.

Atriplex truncata (Torr.) Gray. Collected by W. E. Booth about 4 miles west of Red Rock Pass, southeastern Beaverhead County, Montana. Abundant locally in small denuded area; alkaline soil. August 21, 1952.

Bromus squarrosus L. Collected by George York about 4 miles west of Ashland, Rosebud County, Montana; open grass type; several plants. June 15, 1950.

Bromus trinii Desv. Collected by F. Markiniat on Moose Creek in the Gallatin Canyon, Gallatin County, Montana. This specimen was collected in 1927 and misnamed *B. squarrosus* L.

Calamagrostis scopulorum M. E. Jones. Collected by G. F. Payne near junction of Lightning and Taylor Fork creeks in Gallatin County, Montana. Eroded mountain slope at about 8500 feet altitude. Plant may possibly be valuable in revegetation of eroded mountain slopes. July, 1950.

Callitriche heterophylla Pursh. Collected by Richard H. Smith, in area 5 McCone County, Montana; R 49E T24N Sec. 26. Very common in the upper half of the reservoir and out to a depth of 2 feet. August, 1951.

Carex vallicola Dewey. Collected by W. E. Booth, identified by F. J. Hermann, Specimen Creek Campgrounds about 50 miles south of Bozeman, Gallatin County, Montana. Rocky, moist, grass-sedge type; July 5, 1952.

Centaurea diffusa Lam. Submitted as a weed specimen from Superior, Mineral County, Montana. Coming into area, growing along with *C. maculata* on hillsides and along roads. August, 1951.

A second specimen was collected by J. C. Wright in Sweetgrass County, Montana, 5 miles east of Park County line on Highway 10. Overgrazed pasture; gravelly loam; August 11, 1952.

Chorispora tenella DC. Plant submitted by M. T. Hedegaard, Extension County Agent, as a possible weed for identification. Lake County, Montana; August, 1951.

Plants were also submitted from Miles City, Custer County, Montana where they were thought to have originated from the planting of crested wheatgrass seed in 1950. Plants were examined that were collected on the fairgrounds at Great Falls, Cascade County, Montana, May 15, 1950.

Cirsium canescens Nutt. Collected by H. E. Morris and identified by X. M. Gaines of Washington State College. About one mile north of Huntley, Yellowstone County, Montana. Small patch along a fence row beside road. August, 1951.

Dianthus armeria L. Collected by J. C. Wright 5 miles west of Plains, Sanders County, Montana. Ponderosa pine forest; July 18, 1952.

Eupatorium maculatum L. Collected by H. E. Morris along Pryor Creek in Bighorn County, Montana. Moist creek bottom, fairly abundant locally in ditch. July 29, 1952.

Filago arvensis L. Collected by J. C. Wright 5 miles west of Plains, Sanders County, Montana. Overgrazed pasture. July 18, 1952. Additional specimens were received from W. W. Mauritson, County Agent from Kalispell, Montana. November 15, 1952.

Haplopappus multicaulis (Nutt.) Gray. Collected by W. E. Booth 20 miles north of Alzada, Carter County, Montana. Common and often abundant on rocky outcrops or in sandy areas in pasture where grass is sparse. July 19, 1948.

Haplopappus nanus (Nutt.) D. C. Eat. Collected by W. E. Booth near Red Rock Lake, Beaverhead County, Montana. Dry slope along south side of lake; sagebrush type; plant growing out of sterile rock outcrop. August 23, 1952.

Juniperus utahensis (Engelm.) Lemm. Collected by E. C. Moran along highway south from Bridger, Carbon County, Montana, lower hills of Pryor Mountains; January 16, 1953.

Matricaria maritima L. Submitted for identification by Kim Roberts, Extension County Agent, Thompson Falls, Sanders County, Montana. Growing under wide range of both soil and moisture conditions; common throughout County on abandoned fields and range land. September 8, 1952.

Sanguisorba occidentalis Nutt. Plants received for identification from C. W. Roath, Extension County Agent, Lake County, Montana. Idle land and roadsides; seems to be increasing. June 1948. Two specimens were submitted as weeds for identification since that time, July 6 and July 10, 1951 from Missoula and Mineral Counties.

Silene cserei Baumg. Collected by F. B. Cotner and W. E. Booth 2 miles west of Ingomar, Rosebud County, Montana. A few plants were found along road in moist soil. June 20, 1951.

Symphytum asperum Lepechin. Collected by John Hurst, Jr. at the home of Mrs. P. T. McCarthy, 521 Daly Avenue, Missoula, Montana. September 1, 1949.

Zizia aptera (Gray) Fern. Collected by W. E. Booth 15 miles north of Alzada, Carter County, Montana. Few plants in grassland. June 19, 1948.

THE DISCOVERY AND DESTRUCTION OF CALLICARPA AMERICANA IN MISSOURI

Julian A. Steyermark

The French Mulberry or Beauty-berry (*Callicarpa americana* L.), one of the most beautiful of native American shrubs, had never been found in a wild state in Missouri. E. J. Palmer, Bush, Letterman, Eggert, and Kellogg were well acquainted with it in Arkansas, where they had collected it from various localities, many of them near the Arkansas-Missouri border, but, although they looked for it in adjacent southern Missouri, none succeeded in locating a Missouri station. Reports of its occurrence in the state crept into the literature; for example, it was reported in Tracy's Catalogue of the Missouri plants in 1886 on p. 66 from Miller County as collected by Winick, but these reports proved to be based upon misidentifications. In Dr. Moldenke's Monograph of the genus *Callicarpa* (Rep. Sp. 39: 307. 1936), the Missouri records are likewise shown to be based upon unauthenticated reports.

At the New York Botanical Garden in the spring of 1949 I conferred with Dr. H. N. Moldenke about the distribution of the Verbenaceae in Missouri, and was surprised to learn that he had examined a specimen of *Callicarpa americana* supposedly collected in Chariton County, Missouri, by Mrs. Henry S. Young of the Carnegie Museum. She had collected the plant on June 30, 1925. My immediate reaction was that there must be some mistake, since Chariton County is in glaciated north-central territory and not the sort of terrain for *Callicarpa*. If it occurred anywhere in the state, it should have been found in extreme southern Missouri in an unglaciated section.

That same spring, I wrote Mrs. Young and expressed my interest in learning the exact station where she had collected the plant, at the same time questioning the possibility of a mistaken locality. I was gratified to hear from her as follows: "I am so sorry to cause all this trouble about the *Callicarpa americana*. I am normally a very careful worker and I had a large collection of Chariton Co., Mo., also of Logan Co., Ark. In working these over—with both places in my mind—I simply wrote the one state when it should have been the other. I take great pride in seldom making a mistake. But this was a bad one. So sorry!" As of the summer of 1949, then, *Callicarpa americana* was yet unknown to occur in a wild state in Missouri.

The writer for the past fifteen years has been making detailed plant surveys and collections of the flora from areas in Missouri that are in danger of being flooded by proposed impoundments of water. Some of these engineering projects are already completed and have done their destructive work—permanently flooding vast areas of woodland, meadow, and various habitats for plant life. Most of the completed dams have blotted out scenic landscapes along Ozark streams, drowning out the rare as well as the common species, and destroying many square miles of forested land. Part of the beautiful White River and its tributary, North Fork, has already been impounded by the Norfolk dam of Arkansas and Missouri. The rest of the White River and tributaries in Missouri is being destroyed by the Bull Shoals dam and Table Rock dam.

Although I had carried on extensive field work along the course of the White River for a number of years, there were yet many

uncompleted gaps which I wanted to survey before the dams did their permanent blotting out of the low lying vegetation. Thus, it was while botanizing on September 29, 1949, along a stretch of White River in Taney County by the Missouri-Arkansas line, just within Missouri territory, that I made a real discovery. From a place on the White River known as Brown's Ferry I was walking downstream north and east towards Cedar Hol along the rocky, limestone, wooded slopes that faced to the south into Arkansas. That afternoon I had not found anything especially exciting; then suddenly I spotted some clusters of small fruits of an unusual shade of purple (between a doge purple [color 732, p. 96 vol. 1. 1938] and beetroot purple [color 830/2, p. 173, vol. 2. 1939] according to the colour chart of the Royal Horticultural Society). Nearing the fruits and examining them, I recognized at once that they were indeed those of the long-hunted *Callicarpa*. Not one bush, but many were encountered in a small area on the wooded slopes from twenty to twenty-five feet above the surface of the river. Careful search revealed a rather frequent occurrence of the plant scattered up the rocky slopes to the lowest line of limestone bluffs, the highest point reached being 60 feet above the water level of the river.

I collected many duplicate specimens for distribution to various herbaria and was pleased to realize that here was a new northwestern limit of distribution for this shrub. At the same time, however, my pleasure in seeing this remarkably beautiful shrub was dispelled by the thought that it would not be long before these plants and the species, at the only known station in the state, would become exterminated. For, although the altitudinal distribution of *Callicarpa* was found as high as sixty feet above the present water level, the future impoundment of the Bull Shoals dam would not only completely cover this sixty feet, but fifty to sixty additional vertical feet. This would bring the level of the impounding waters well up on the high south-facing limestone bluffs that towered far above the last upper stand of *Callicarpa* bushes.

On May 5, 1951, I re-visited this spot and found the plants only after a difficult search, because the new stems were rising from the ground surface rather than growing out from the old wood. During the latter part of October the waters of Bull

Shoal dam began to rise on the White River and its various tributaries. Shore-lines were becoming permanently flooded. Trees and shrubs representing many species were being cleared along all the slopes from the old level of the streams to the upper new level of the impounded water and were being cut down ruthlessly and burned. An inferno of flames and smoke passed over the southwestern Ozarks, and with them the first and only stand of *Callicarpa* discovered in Missouri faded into oblivion.

The Missouri collection data is: *Steyermark 69453*, rather frequent on south-facing slopes from base to lowest line of bluffs about 60 feet above water level, along north and west side of White River, north and east of Brown Ferry, downstream to Cedar Hol, T 21 N. R 16 W, sect. 13, 5½–6 mi. southeast of Protem, Taney Co., September 29, 1949. Specimens have been deposited in the Chicago Natural History Museum Herbarium, Gray Herbarium, Missouri Botanical Garden Herbarium, New York Botanical Garden Herbarium, United States National Herbarium, and several other herbaria.—Chicago Natural History Museum and Missouri Botanical Garden.

Typification of Euphorbia maculata L.—In two articles (Rhodora **48:** 197–200, 1946; Bull. Torr. Bot. Cl. **74:** 332–333, 1947) I defended the application of the name *Euphorbia maculata* L. to the upright plant of eastern North America long known as *E. preslii* and *E. nutans*.

I did this, not because of any bias in favor of this usage or its author, nor against the previous application to the prostrate plant now called *E. supina* Raf. by Wheeler and Fernald. Neither did I have any bias against Svenson or Croizat, upholders of the older usage. It was, rather, a protest against the specious arguments used in the matter (Svenson, Rhodora **47:** 273–302, 363–388, 1945; Croizat, Bull. Torr. Bot. Cl. **74:** 153–155, 1947) and because the facts known to me seemed to support Wheeler's conclusions.

Although the arguments referred to above still appear to me as unsound as ever, an opportunity, in 1950, to study the specimens in the Linnean Herbarium has led me to re-examine the question. From a conversation with J. E. Dandy and from a

copy, kindly made available by him, of a manuscript "Note on the typification of *Euphorbia maculata* L." by him and E. Milne-Redhead, it is apparent that they are inclined to uphold the previous usage and to reject that of Wheeler. This is on the grounds that Linnaeus erred in writing the name "*maculata*" on the specimen in the Linnean Herbarium which is considered by Wheeler to be the type of *Euphorbia maculata* L.

Examination of the evidence now available to me suggests that the name "*maculata*" on the sheet of the Linnean *Euphorbia* numbered "17" may indeed be an error, as the number "17" applied to *Euphorbia hypericifolia* L. in the Species Plantarum, while number "21" is that of *E. maculata* L. Number "21" appears in the herbarium on an unnamed sheet of the prostrate plant now called *E. supina* Raf. (annotated by J. E. Smith "*maculata*").

The treatment of *E. maculata* in Species Plantarum seems to be based both on a specimen and on the Plukenet plate (Alm. t. 65, f. 8). Since I have already shown (Rhodora **48:** 197–200, 1946) that this plate is the erect plant rather than the prostrate one, the possibility of two species being involved in the basis of *E. maculata* L. suggested by both Svenson and Croizat, and admitted in my second paper, seems to be borne out. In such a case, subsequent typifications must be examined. This has been done by Croizat (loc. cit.) and myself (1947). There seems no doubt that Linnaeus did, in the Mantissa (**2:** 392, 1771), subsequently select the upright plant when he said "*Euphorbia maculata* similis *E. hypericifoliae*," thus effectively typifying the species.

It only remains to see if this typification is in accord with the "Guide for the determination of types" adopted at Stockholm in 1950. In this, provision 4a says, in part, "In choosing a lectotype any indication of intent by the author of a name should be given preference unless it is contrary to his description and remarks." Linnaeus, in the Mantissa, certainly indicated his intent to apply the name to the erect plant. In my judgment, the description accompanying the original publication of *E. maculata* L. (Sp. Pl. 455, 1753) could apply to either species, with the lack of any mention of a prostrate habit and the "calyce rufe" favoring the erect plant. Therefore the typification in

the Mantissa seems to be in accord with this guide and there is no reason for rejecting it.

Thus, even though the plant indicated as type by Wheeler is probably not the type, his applications of the names *Euphorbia maculata* L. to the common upright plant and *Euphorbia supina* Raf. to the prostrate one seem to hold.—F. R. Fosberg, falls church, virginia.

Allium tricoccum Ait., var. **Burdickii,** var. nov.—Folia sine petiolis 14–19 cm. longa, 0.8–2 cm. lata, lanceolata; vaginae albae; petioli viridicantes; scapi 13–16 cm. longi.

Allium tricoccum Ait. is larger in all respects than the variety. Leaves without petioles are 15.5–23 cm. long and 2.6–6 cm. wide. The scape varies from 21 cm. to 33.5 cm. in length. Both sheaths and petioles are red or reddish instead of white or greenish. In outline the leaves are elliptic not lanceolate as in the variety. The species is found generally in marshy habitats whereas the variety prefers upland woods. If both grow in the same locality the variety occupies the higher ground. Another factor that separates the two is their differential development. The species appears at least a week earlier in the spring than the variety but in spite of this earlier start it comes into bloom more than a week later than the variety.[1] [2]

In Kalamazoo County the species is abundant in Section 20, Prairie Ronde Township, where it occurs with swamp birch, tamarack, white elm and red ash. Also it is found in moist soil in Brady and Climax Townships and in several places along the Kalamazoo River. Variety *Burdickii* grows principally in upland woods of beech and maple on the western side of the county. It has been recorded from sections 4, 5, 16, 19, 22, 24, 26 and 30 of Prairie Ronde Township and in section 18 of Schoolcraft Township. Collections have been made in Porter Township, Van Buren County and near Libertyville, Lake County, Illinois.

This variety has been named in honor of Dr. J. H. Burdick, who collected specimens in 1877 at Milton, Wisconsin and who

[1] Hanes, Clarence R. and Ownbey, Marion. "Some observations on two ecological races of Allium tricoccum in Kalamazoo County, Michigan." Rhodora: 48: 61–63. 1946.

[2] Hanes, Clarence R. and Florence N. Flora of Kalamazoo County, Michigan. 68–69. 1947.

sent them to the Gray Herbarium with descriptions showing the differences that have been noted above.—Clarence R. Hanes, Schoolcraft, Michigan.

Iris Pseudacorus L. Established in the Vicinity of London, Ontario.—On June 14, 1952 the writer located a stand of the yellow iris, *Iris Pseudacorus* L. in Delaware Township, Middlesex County, Ontario on the south bank of the Thames River, twelve miles downstream from the union of the north and south branches of the Thames in London. The plants occupied the area surrounding the east end of a small pond about 350 yards east of the bridge which crosses the Thames on the road between the villages of Delaware and Komoka. The pond is on a bluff forming the bank of the river and remains filled with water during the summer, being fed from drainage from the slopes above and having an outlet directly into the river. The plants were concentrated in an area of 30 yards by 40 yards in the marshy region at the edge of the pond, some with their rootstocks in soil covered by six inches of water and some in adjacent damp ground. On June 17 the pond was again visited and eleven separate plants were counted, the smallest having leaves two feet tall, with one flower in bud and another in bloom, and the largest having leaves and stems five feet tall, with sixty-seven flowers in bloom, several flowers faded and a few in bud, the whole plant being five feet in diameter. A few plants of the Blue Flag, *Iris versicolor* L. were also present along the border of the pond. Collections of *Iris Pseudacorus* were made and six herbarium sheets were prepared: 526 a, b, c (14.VI.52) and 527 a, b, c (17.VI.52). Of these 526 a and b are deposited in the Gray Herbarium, the specimens having been kindly identified by Dr. R. C. Foster, and the other four sheets are in the writer's collection.—W. W. Judd, Department of Zoology, University of Western Ontario, London, Canada.

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